network Maryland

Security Overview

September 2003

Overview
What is networkMaryland?

- networkMaryland is a statewide high-speed communications backbone available throughout the State of Maryland to connect various public sector networks. It is currently focused on data transport.

- networkMaryland will provide affordable, reliable high-speed transport access throughout all areas of the State

- Intended customers:
  - State Agencies
  - Higher Education
  - Libraries
  - Local and County Governments
  - K-12 Education
  - Hospitals

2003 Legislative Requirement

Joint Chairmen's Report Operating Budget, April 2003, states:

"*With the completion of the core network anticipated by the end of fiscal 2004, it is the intent of the committees that, unless approved by the State Chief Information Officer, all State agencies utilize networkMaryland in fiscal 2005.*"

DBM is requested to provide:

"Listing of, and justification for, agencies with fiscal 2005 funding for Internet or inter-LATA connectivity that could otherwise have been provided through networkMaryland".
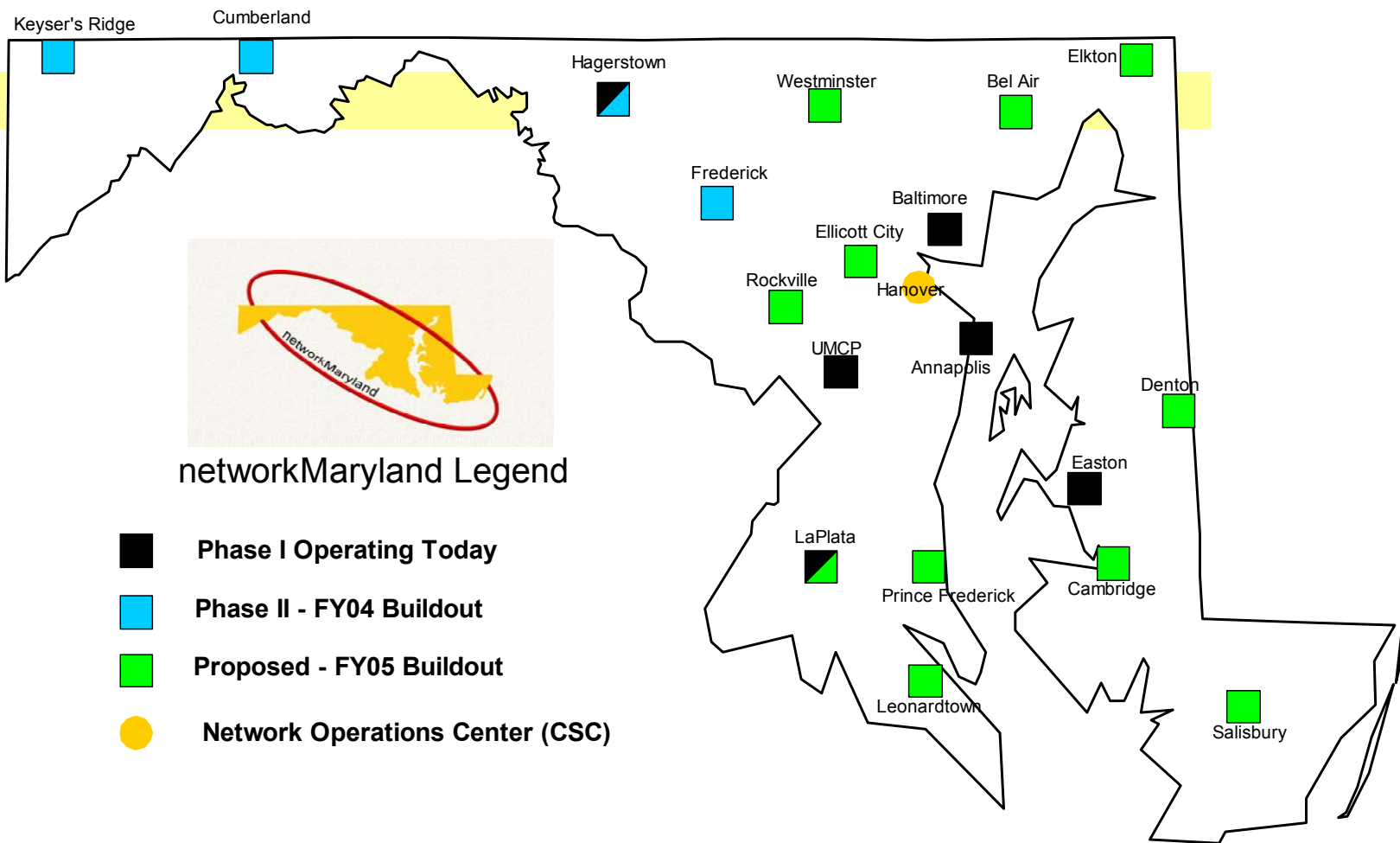
Project Milestones

- **Project Initiated - 1999**
  - **Initiated as a result of a Statewide Task Force recommendation to General Assembly**
- **Project Paused – Jan 2002**
- **Back on Track – Oct. 2002**
  - **Project Management Team established**
  - **Numerous State Agencies migrating to network for cost savings and improved services**
- **Network Re-design - Spring 2003**
  - **Reduced the capital cost of project and increased robustness**
- **Western Maryland build out – Complete December 2003**
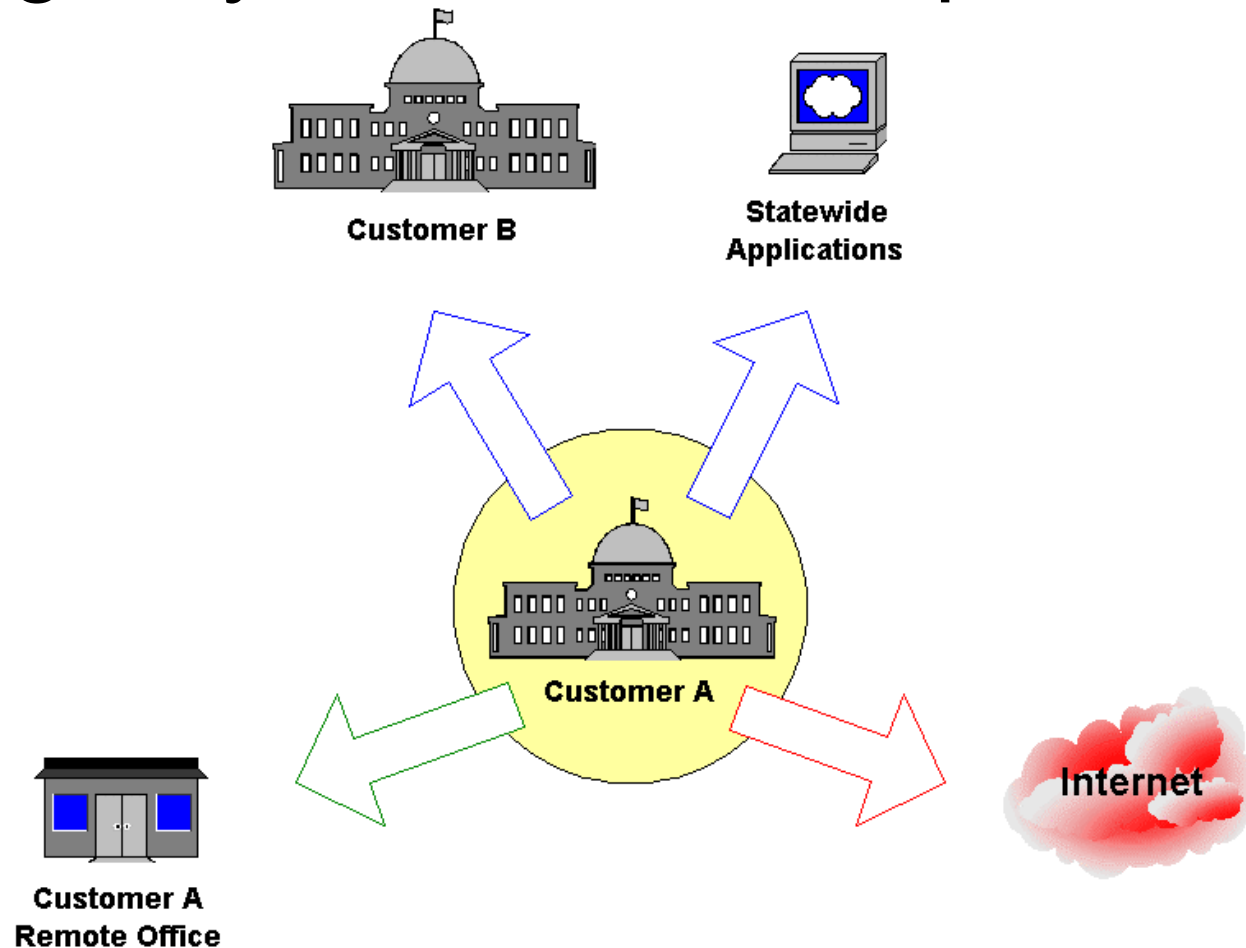- **Annapolis build out – Complete April 2004**

Geographic Map

Keyser's Ridge
Cumberland
Hagerstown
Elkton
Westminster
Bel Air
Frederick
Baltimore
Ellicott City
Rockville
Hanover
UMCP
Annapolis
Denton
Easton
LaPlata
Prince Frederick
Cambridge
Leonardtown
Salisbury

networkMaryland Legend

■ **Phase I Operating Today**

■ **Phase II - FY04 Buildout**

■ **Proposed - FY05 Buildout**

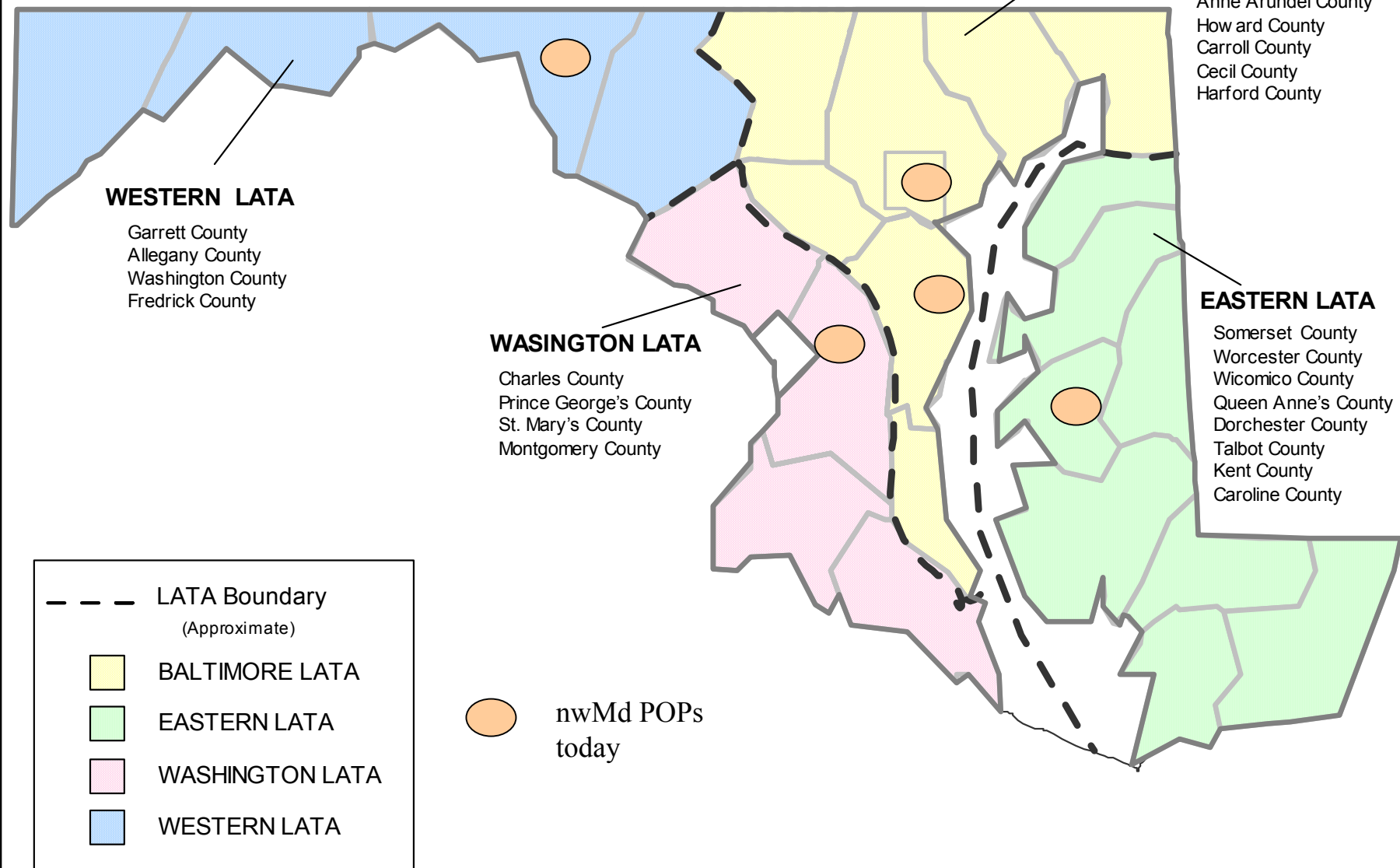● **Network Operations Center (CSC)**

Agency's Business Requirements

networkMaryland Services

- **Private Network Services (interLATA Layer 2 or Circuit-Switched transport)**

  - supports State entities' WAN transport requirements

- **Statewide Government Intranet (SwGI)**

  – Routed network for inter- and intra-Agency communications and access to Statewide applications

- **Internet Services (ISP)**

  – provides communications access to the public Internet

BALTIMORE LATA

Baltimore County
Baltimore City
Calvert County
Anne Arundel County
Howard County
Carroll County
Cecil County
Harford County

WESTERN LATA

Garrett County
Allegany County
Washington County
Fredrick County

WASINGTON LATA

Charles County
Prince George's County
St. Mary's County
Montgomery County

EASTERN LATA

Somerset County
Worcester County
Wicomico County
Queen Anne's County
Dorchester County
Talbot County
Kent County
Caroline County

- - - LATA Boundary
(Approximate)

BALTIMORE LATA

EASTERN LATA

WASHINGTON LATA

WESTERN LATA

nwMd POPs
today

MARYLAND'S LOCAL ACCESS AND TRANSPORT AREAS (LATA)

Private Network Services (interLATA)

- **Access to all 4 LATAs**

- **Available to all networkMaryland customers**

- **Point to point connections similar to leased services**

- **768K FRASI up to OC-48 (Non-standard Circuit)**

- **Supports multiple interfaces (copper or optical)**

- **Ethernet Interface Hand-offs for MAN locations**
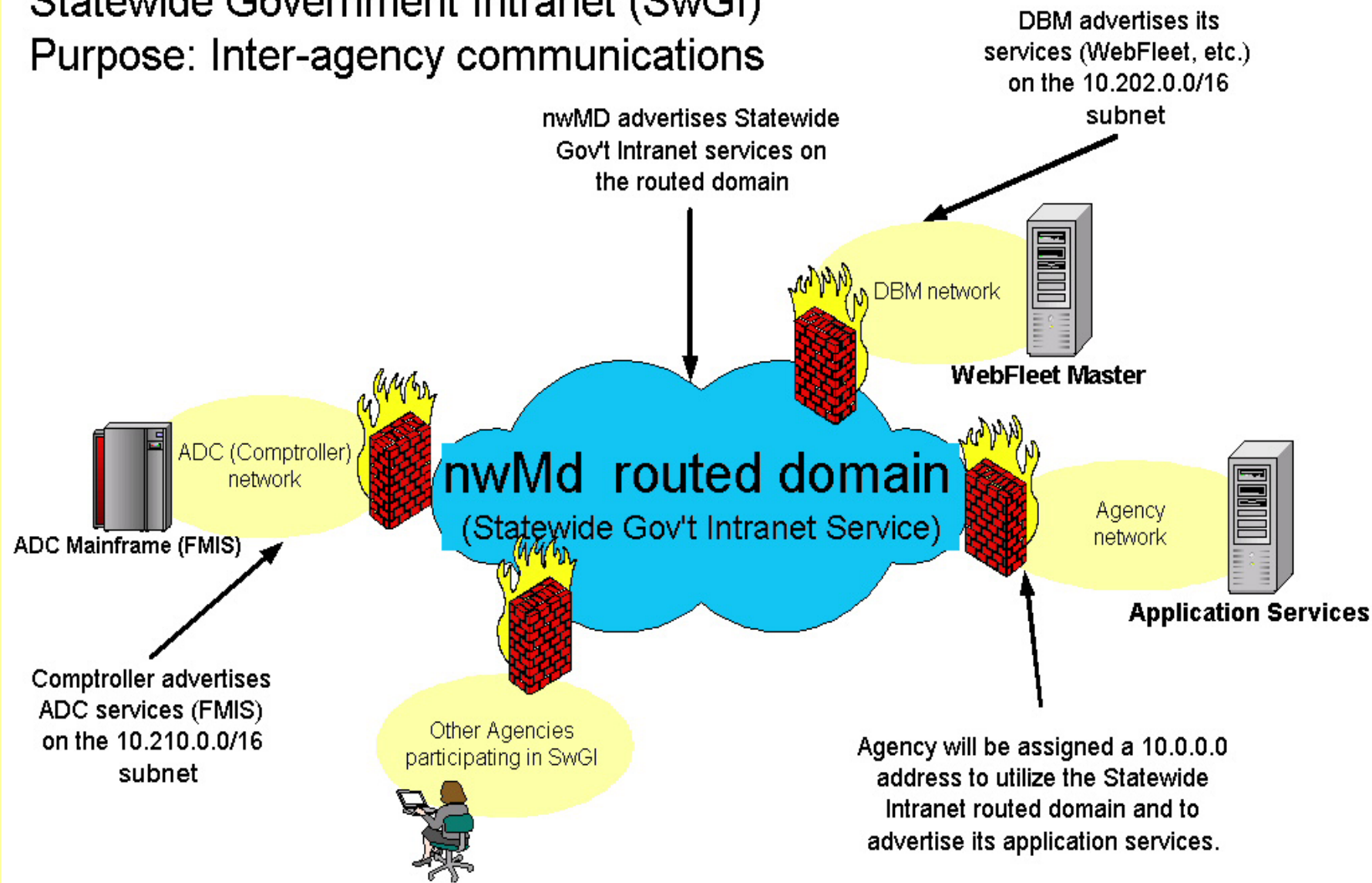
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networkMaryland Services
Intranet Network Services Solution

- **Statewide Government Intranet (SwGI) was created for Inter-agency communications**

- **Available to any Public Sector entity**

- **Allows state agencies to get a high-speed connection to other connected agencies**

- **Allows connectivity to FMIS, WebFleet Master application and allows agencies to create and share value-added services**

- **Will eventually replace the FMIS network**

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Statewide Government Intranet (SwGI)
Purpose: Inter-agency communications

DBM advertises its services (WebFleet, etc.) on the 10.202.0.0/16 subnet

nwMD advertises Statewide Gov't Intranet services on the routed domain

DBM network

WebFleet Master

nwMd routed domain
(Statewide Gov't Intranet Service)

ADC (Comptroller) network

ADC Mainframe (FMIS)

Agency network

Application Services

Comptroller advertises ADC services (FMIS) on the 10.210.0.0/16 subnet

Other Agencies participating in SwGI

Agency will be assigned a 10.0.0.0 address to utilize the Statewide Intranet routed domain and to advertise its application services.

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networkMaryland Services
Internet Services Solution

- **Redundant Tier 1 ISP services, currently provided by Qwest and MCI**
- **BGP routing allows for load sharing and resilient service in the event of an ISP circuit failure**
- **networkMaryland creates an economy of scale for ISP services, reducing costs**
- **In the event of a change of one of the ISPs, customers will see uninterrupted service and no need to change IP addressing**

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Getting Connected

- **Migrate off of the legacy 167.102.x.x address**
- **Use the DBM-assigned 10.x.x.x address**
  - **Allows connectivity to SwGI hosted applications**
- **Perform internal network assessment**
  - **Security ("Does my network have any backdoors?")**
  - **Hardware ("Can router support increased bandwidth?")**
  - **Software ("Is my IOS version up-to-date?")**
- **Security IS the Responsibility of the Customer**
- **Connections to SwGI & ISP services requires a firewall**

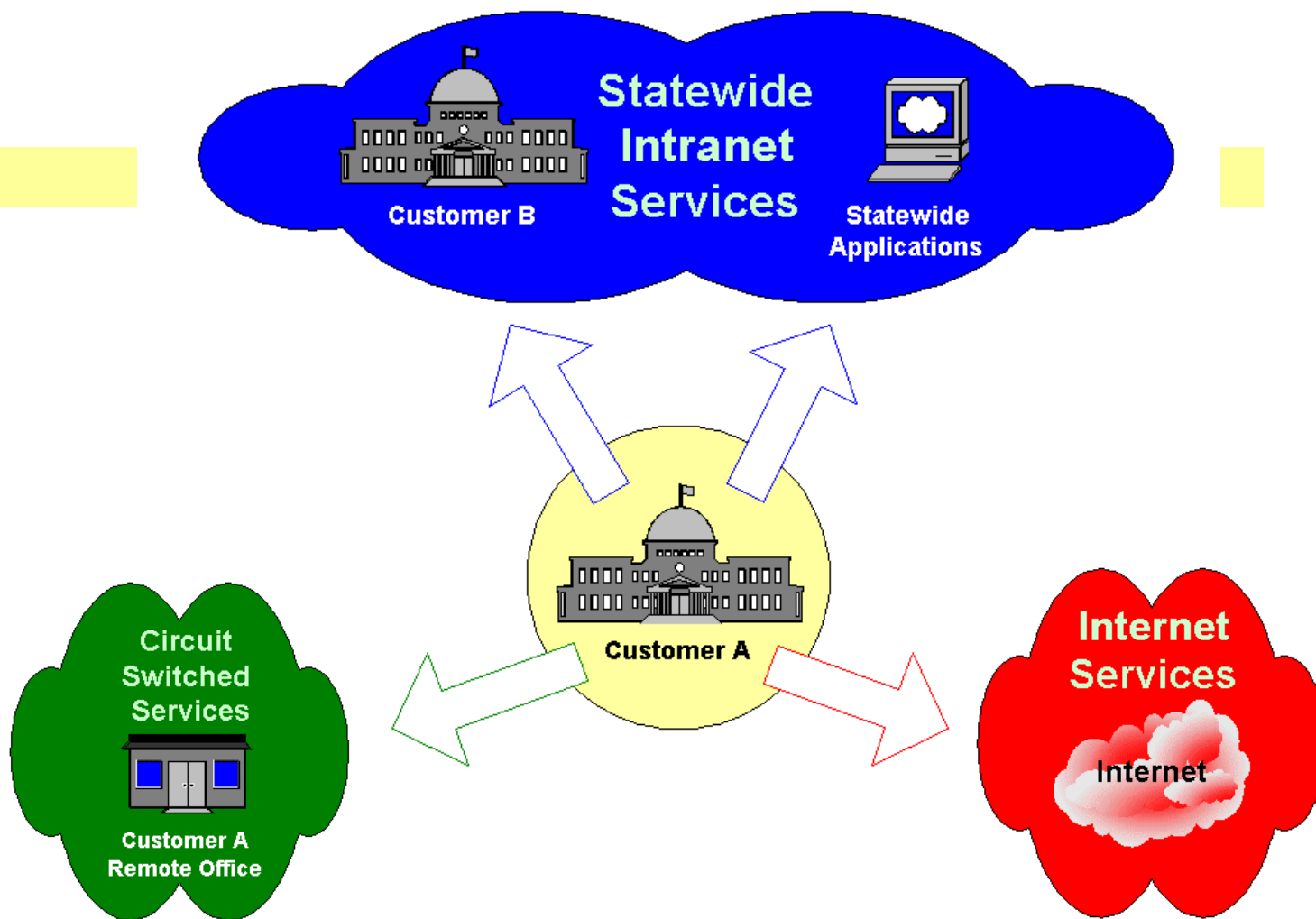# Sample Agency Firewall Setup
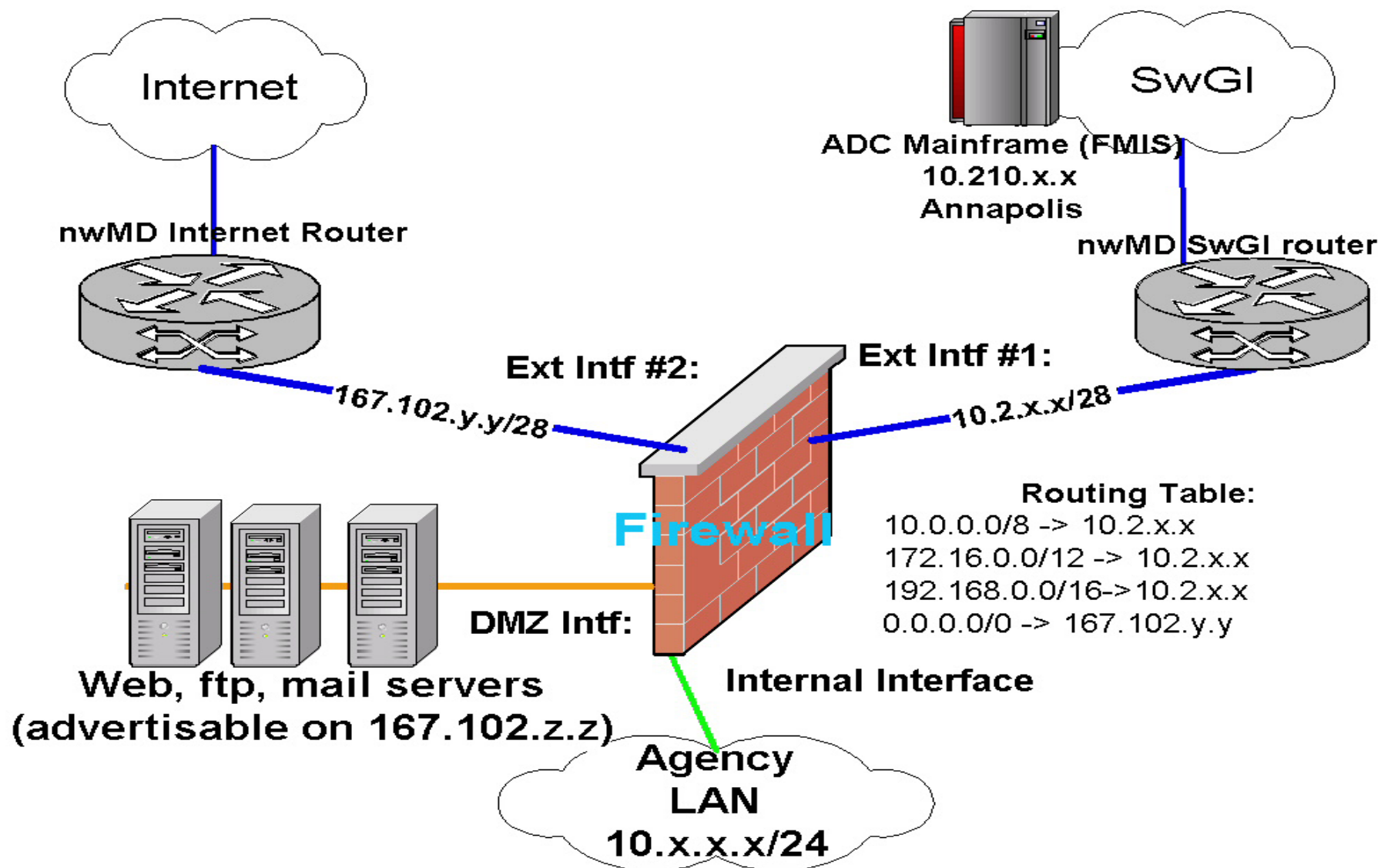
Justifications for a Firewall

- **Protect Internal network from the Internet and other SwGI participants**

- **Various forms of attacks: Denial of Service, viruses, and worms**

- **SwGI is considered an untrusted network as well.**

- **Provides the entity the ability to better utilize network address pool via NAT and PAT**

- **Secure service offerings via the use of a DMZ (Mail, FTP, and Web servers)**

Hardware Requirements

- **4 10/100 Ethernet Ports Min.**
  - **Port for Internet Services**
  - **Port for SwGI**
  - **Port for DMZ**
  - **Port for Internal LAN**
- **Stateful or Proxy-based firewalls are acceptable**
- **Numerous vendors provide Firewall appliances and/or software to protect Internal networks**

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Statewide Intranet Services

Customer B

Statewide Applications

Customer A

Circuit Switched Services

Customer A Remote Office

Internet Services

Internet

Questions???

For more information …

http://www.networkmaryland.gov

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